

A Presentation on EPA's

Mobile Source Observation Database

for the FACA Mobile Source Technical Review Subcommittee

Auburn Hills, Michigan

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The Challenge

- Develop “a database”
- Accommodate Historical Emission Factor Data
 - Stored by individual test program
 - In a somewhat common, but arcane fashion
 - Many differences allowed between programs

The Challenge (Continued)

- Accommodate Variety of New Data
 - Engine Tests (in addition to Vehicle Tests)
 - Non-Road Vehicles
 - Second-by-Second Data
 - Experimental Tests
- More Systematic Data Validation and Input

The Solution

- A Design Team
 - Primarily Vehicle Testing Experts
 - Consensus Decision Making
- A Relational Database
- Entity-Relationship (ER) Design Method
- Keeping it Simple

The Solution (continued)

- Initial Implementation
 - ERwin Design Tool
 - FoxPro Data Base Management Software
- Use of Standard Table (.DBF) Formats for Data Submission from Contractors and for Data Entry

The Top-Level Design Concept



Elaboration of the Design

- Kinds of Mobile Sources
 - Vehicles
 - Engines
- Kinds of Observations (RESULTS)
 - Procurement
 - Repair
 - Tailpipe Emission Test
 - Evaporative Emission Test
 - Etc

Elaboration of Design (Continued)

- Additional Entities
 - Test Programs which Produced the Data
 - Kinds of Fuel and Batches of Fuel
 - Test Schedules, e.g. Driving Schedules
- Additional Relationships
 - Multiple Procurements of Same Vehicle
 - Distinguish Tests Done Before - After Repairs
 - Identify Replicate Tests
 - Identify Groups of Results (e.g. for SFTP)

Advantages of This Approach

- Facilitates Systematic Data Quality Checking and Entry
- Facilitates Combining Data from Multiple Test Programs for Analysis
- Low Cost
- Relatively Platform Independent
- Little Specialized Contractor Expertise Needed

What’s Currently in MSOD?

- Data From 71 Test Programs
- Almost 32,000 Mobile Sources
 - 250 are Model Year 1995 or Later
 - Over 8000 Model Year 1990-1994
- 236,274 Observations or RESULTS

For More Information

- URL <http://www.epa.gov/otaq/models.htm>
- Downloadable MSOD User Guide
 - In Adobe Acrobat (.PDF) Format
- Copy of MSOD Can Then be Requested
- Mitch Cumberworth
 - EPA Office of Transportation and Air Quality
 - 2000 Traverwood Drive
 - Ann Arbor, MI 48105
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